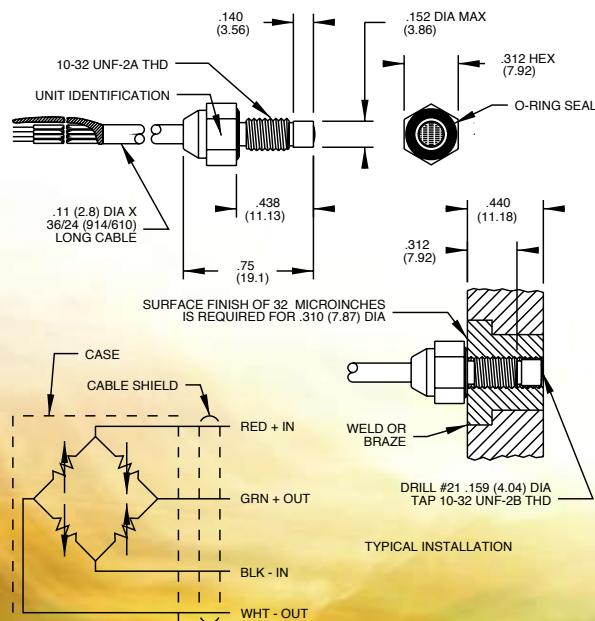


Model 8530B Piezoresistive pressure transducer

Features

- 200 to 1000 psia
- Absolute reference



STANDARD TOLERANCE
INCHES (MILLIMETERS)
.XX = +/- .03 (X = +/- .8)
.XXX = +/- .010 (XX = +/- .25)

Description

The Endevco® model 8530B the Endevco® model 8530B is a miniature, high sensitivity piezoresistive pressure transducer for measuring absolute pressure. The volume behind the diaphragm is evacuated and glass sealed to provide an absolute pressure reference. Full scale output is 300 mV with high overload capability and high frequency response. It is available in ranges from 200 psia to 1000 psia. See model 8530C for lower pressure ranges.

Endevco pressure transducers feature an active four-arm strain gage bridge diffused into a sculptured silicon diaphragm for maximum sensitivity and wideband frequency response. Self-contained hybrid temperature compensation provides stable performance over the temperature range of 0°F to 200°F (-18°C to +93°C). Endevco transducers also feature excellent linearity and provide stable performance over the temperature range of 0°F to 200°F (-18°C to +93°C). Endevco transducers also feature excellent linearity (even to 3X range), high shock resistance, and high stability during temperature transients.

The model 8530B is available with metric M5X0.8 mounting threads as 8530B-XXM5 on special orders. Also available with integral four-pin connector as Model 8530B-XXM37. The standard cable length is 30 inches. Alternate lengths are available in quantity by using part number 8530B-XXX-ZZZ where "XXX" is the pressure range and "ZZZ" is the cable length in inches

Endevco model 136 three-channel system, model 4428A or 4430A signal conditioner, or Oasis 2000 computer-controlled System are recommended as signal conditioner and power supply.

Model 8530B Piezoresistive pressure transducer

Endevco

SPECIFICATIONS

CERTIFIED PERFORMANCE: All specifications assume +75°F (+24°C) and 10 Vdc excitation unless otherwise stated. The following parameters are 100% tested. Calibration data, traceable to the National Institute of Standards and Technology (NIST), is supplied.

	Units	8530B-200	-500	-1000
RANGE	psia	0 - 200	0 - 500	0 - 1000
SENSITIVITY [1]	mV/psi	1.5 ±0.5	0.6 ±0.2	0.3 ±0.1
COMBINED: NON-LINEARITY, NON-REPEATABILITY,				
PRESSURE HYSTERESIS [2]	% FSO RSS Max	0.50	0.50	1.0
Non-Linearity, Independent	% FSO Typ	0.2	0.2	0.2
Non-Repeatability	% FSO Typ	0.1	0.1	0.1
Pressure Hysteresis	% FSO Typ	0.1	0.1	0.1
ZERO MEASURAND OUTPUT [3]	mV Max	±10	±10	±10
ZERO SHIFT AFTER 3X RANGE ±2.5X FSO Max TYP	±% 3X FSO Max (Typ)	0.2 (0.05)	0.2 (0.05)	0.2 (0.1)
THERMAL ZERO SHIFT				
From 0°F to 200°F (-18°C to +93°C), ref. to 75°F (24°C)	±% FSO Max	3	3	3
THERMAL SENSITIVITY SHIFT				
From 0°F to 200°F (-18°C to +93°C), ref. to 75°F (24°C)	±% Max	4	4	4
RESONANCE FREQUENCY	Hz	750 000	1 000 000	>1 000 000
NON-LINEARITY AT 3X RANGE	% 3X FSO	1.5	2.0	2.0@25xFSO
THERMAL TRANSIENT RESPONSE PER ISA-S37.10, PARA. 6.7, PROCEDURE I	psi/°F psi/°C	0.02 0.04	0.02 0.04	0.04 0.07
PHOTOFLASH RESPONSE [4]	Equiv. psi	5	10	20
WARM-UP TIME [5]	ms	1	1	1
ACCELERATION SENSITIVITY	Equiv. psi/g	0.0003	0.0002	0.0002
BURST PRESSURE (Diaphragm)	psia Min	800	2000	4000
CASE PRESSURE [6]	psia Min	1000	5000	5000

ELECTRICAL

FULL SCALE OUTPUT	300 ±100 mV at 10.0 Vdc
SUPPLY VOLTAGE [7]	10.0 Vdc recommended, 18 Vdc maximum
ELECTRICAL CONFIGURATION	Active four-arm piezoresistive bridge
POLARITY	Positive output for increasing pressure
RESISTANCE	
Input	2000 ±800 ohms
Output	1600 ±500 ohms
Isolation	100 megohms minimum at 50 Volts; leads to case, leads to shield, shield to case
NOISE	5 microvolts rms typical, dc to 50 000 Hz; 50 microvolts rms maximum, dc to 50 000 Hz

MECHANICAL

CASE, MATERIAL	Stainless Steel (17-4 PH CRES)
CABLE, INTEGRAL	Four conductor No. 32 AWG Teflon® insulated leads, braided shield, silicone jacket, 30 inch standard length
DEAD VOLUME (+) PORT	0.0003 cubic inches (0.005 cc)
MOUNTING/TORQUE	10-32 UNF-2A threaded case 0.438 inch (11.12 mm) long/15 ±5 lbf-in (1.7 ±0.6 Nm)
WEIGHT	2.3 grams (cable weighs 9 grams/meter)

ENVIRONMENTAL

MEDIA [8] [9]	Use with clean, dry air or other non-conductive gases.
TEMPERATURE	-65°F to +250°F (-54°C to +121°C)
VIBRATION	1000 g pk
ACCELERATION	1000 g
SHOCK	20 000 g, 100 microsecond haversine pulse
HUMIDITY	Isolation resistance greater than 100 megohms at 50 volts when tested per MIL-STD-202E, Method 103B, Test Condition B.

CALIBRATION DATA [10]

Data supplied for all parameters in Certified Performance section. Optional calibrations available for all parameters in Typical Performance section. [10]

INCLUDED ACCESSORIES

EHR93 O-RING, VITON

OPTIONAL ACCESSORIES

EHR96 O-RING, FLUOROSILICONE
24328-3 4 CONDUCTOR SHIELDED CABLE

NOTES

- 1 psi = 6.895 kPa = 0.069 bar.
- FSO (Full Scale Output) is defined as transducer output from 0 to + full scale pressure which is typically 300 mV.
- Zero Measurand Output (ZMO) is the transducer output with 0 psia applied.
- Per ISA-S37.10, Para. 6.7, Proc. II
- Warm-up time is defined as elapsed time from excitation voltage "turn on" until the transducer output is within ±1% of reading accuracy.
- Case pressure is the media containment pressure in the event of diaphragm rupture.
- Use of excitation voltages other than 10.0 Vdc requires manufacture and calibration at that voltage since thermal errors

- increase with high excitation voltages.
- Internal seals are epoxy and are compatible with clean dry gas media. Media in measurand port is exposed to CRES, Parylene C, epoxy and the VITON O-Ring.
- O-Ring, PARKER No. 5-125, compound V747-75 (VITON®) is supplied unless otherwise specified on purchase order. Fluorosilicone O-ring, for leak-tight operation below 0°F is available on special order.
- Maintain high levels of precision and accuracy using Endevco's factory calibration services. Call Endevco's inside sales force at 800-982-6732 for recommended intervals, pricing and turnaround time for these services as well as for quotations on our standard products.

NOTE: Modified specifications are available on special order.

Continued product improvement necessitates that Endevco reserve the right to modify these specifications without notice. Endevco maintains a program of constant surveillance over all products to ensure a high level of reliability. This program includes attention to reliability factors during product design, the support of stringent Quality Control requirements, and compulsory corrective action procedures. These measures, together with conservative specifications have made the name Endevco synonymous with reliability.

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